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EXAMINER

KORNAKOV, MICHAIL

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,067

Applicant(s)

COLE ET AL.

Examiner

Michael Kornakov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 23-28, 30-40 and 43-45 is/are pending in the application.
- 4a) Of the above claim(s) 23-28 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32-34, 38, 39, 44 and 45 is/are allowed.
- 6) ☒ Claim(s) 1, 3-8, 10, 30, 31, 40 and 43 is/are rejected.
- 7) ☒ Claim(s) 35-37 is/are objected to.
- 8) ☒ Claim(s) 1-10, 23-28, 30-40 and 43-45 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-10, 30, 31, 40, 43, 32-39, 44 and 45 with respect to claims 23-28 in Paper No. 6 is acknowledged. Therefore, claims 23-28 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. Authorization for this examiner's amendment was given in a telephone interview with Mr. W. Hogg, esq., on 11/18/2003.

The application has been amended as follows:

Cancel claim 11.

3. Claims 1-10, 30, 31, 40, 43, 32-39, 44 and 45 are examined on the merits.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the reference sign 92, mentioned in the description on page 6, line 4. A proposed drawing correction or corrected drawings are required in

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reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Claim 1 provides for "a temperature modifier mechanism", which is not recited in the instant specification. Appropriate correction is required.

Claim Objections

6. Claim 35 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 35 recites the same system as described in claim 34 and provides the specificities of atmosphere (oxidizing) under which the atomized treatment mixture mist engages the surface of the metal object. Such specificities are not considered as structural limitation of the claimed apparatus. Apparatus claims must be structurally distinguishable from the prior art in terms of structure not function, consult *In re Danley*, 120 USPQ 528, 531 (CCPA 1959). Therefore, claim 35, as instantly presented, and dependent claims 36 and 37 are not examined on the merits.

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7. Claim 10 is objected to because of the following informalities: Claim 10 depends on claim 1 and recites "said control device". Apparently, the said control mechanism is indicated. Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 1-7, 9, 10, 30, 31, 40, 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- The recited in claim 1 "temperature modifier mechanism" constitutes an indefinite subject matter, because it is not clear whether the said mechanism can be utilized as a heating device. Claims 2-7, 9, 10, 30, 31, 40 are rejected because of their dependency and failure to remove the ambiguity of the base claim.

- Claim 1 recites "the **composite**, contained in the aqueous solution". There is insufficient antecedent basis for this limitation in the claim.

- Claim 43 recites the limitation "the composition". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1, 3, 5, 6, 7, 8, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al (U.S. 3,617,039).

Fukui discloses descaling apparatus for treating the surface of the steel strip. The apparatus of Fukui comprises spray nozzle means (13) for spraying aqueous solution of alkali metal hydroxide, the said means include nozzles disposed on each side of the strip; a storage vessel (14), which is connected to spray nozzle means; wounding

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mechanism (12), which moves the steel strip relative to nozzle means; cooling means (3') (reads on "temperature modifier", as instantly claimed); pickling tank (9'). With regard to a temperature-sensing device, Fukui specifically points out the temperature of steel strip surface, which is measured prior to treatment of this surface with alkaline solution and therefore a temperature-sensing device, positioned to sense such temperature, is inherently present in the teaching of Fukui (paragraph, bridging col. 7 and 8; Fig. 2).

The teaching of Fukui remains silent about control mechanism to control cooling means in response to the temperature, sensed by temperature sensing device. However, Fukui teaches that the steel strip surface is cooled after annealing from 1,100°C to a temperature, which is only above the melting point of alkaline metal hydroxide or salt (col.7, lines 60-71) and the cooling device should be utilized provided that **care is taken** that the cooling does not proceed to a level below the melting point of the **respective alkali metal compound** (col. 8, lines 45-47), thus motivating the skilled artisan to control the operation of cooling means in the **wide range** of steel strip temperatures in order to obtain an optimum steel strip treatment conditions. Therefore, one skilled in the art, motivated by the teaching of Fukuda, would have found it obvious to utilize the control mechanism, which is capable to control the cooling means of Fukui, thus precisely maintaining the temperature of steel strip surface and providing the optimum alkaline treatment conditions.

Regarding the limitation of claim1, which recites "a control mechanism to control said temperature modifier mechanism responsive to the sensed temperature of the

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surface of said metal object to a temperature above the melting point of the composite contained in the aqueous solution and below the temperature at which the Ledefrost effect appears”, it is noticed here that any control mechanism, which is capable of controlling the operation of cooling means in the wide range of temperatures, would be capable to control the operation of cooling means in order to maintain the temperature of steel strip surface in the recited range, namely, below the temperature of Ledenfrost effect, but higher than the melting point of respective alkaline ingredient.

Regarding the limitation of claim 43, Fukui teaches the annealing furnace (reads on “heating mechanism”, as instantly claimed), which is disposed prior to the point where the temperature of the strip is registered for further alkaline processing.

14. Claim 4, 10, 30, 31 and 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui in view of JP6-143142.

Fukui remains silent about the surface condition analyzer in communication with control mechanism, wherein the control mechanism is configured to control the flow rate of aqueous caustic solution through the nozzle responsive to sensed speed of metal object and to the degree of surface conditioning, measured by analyzer. However, the systems, which control steel surface processing and particularly descaling, in response to processing parameters, as instantly recited, are known and utilized in the art.

Thus, JP'142 teaches apparatus for removing oxide scale from steel surface, wherein in order to perform a proper descaling, a communication is provided between the surface material component analyzer and scale thickness measuring unit (13, 14)

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(reads on "surface condition analyzer", as instantly recited), a computer controller (12) (reads on "control mechanism", as instantly claimed), which is connected to regulator, thus controlling the processing media flow rate, and a roller conveyor (see Abstract, paragraph 7, drawing 1). Thus communication enhances and optimizes the descaling process.

Because both Fukui and JP'142 are concerned with effective descaling of steel surfaces and JP'142 teaches descaling device, which includes surface material component analyzer and scale thickness measuring unit and roller conveyor, connected to controller, which optimizes and regulates the flow of processing media, one skilled in the art, motivated by the teaching of JP'142, would have found it obvious to utilize the speed sensing device and surface controlling units of JP'142 and provide communication between such devices, alkaline solution supply line and controlling mechanism in order to efficiently and precisely control the descaling of steel strip surface, utilizing the apparatus of Fukui.

Allowable Subject Matter

15. Claims 32-34, 38, 39, 44, 45 are allowable over the prior art of record.
16. Claims 2, 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
17. The following is a statement of reasons for the indication of allowable subject matter: non of the prior art references recites the apparatus for treating the steel

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surface wherein a surface coverage analyzer is mounted adjacent to the spraying nozzle or wherein at least one nozzle communicates with at least two reservoirs with different solutions, in combination with the other structural elements as claimed.

18. Applicant should note that additional prior art cited in PTOL-892 shows the general state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (703) 305-0400. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703) 308-4333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872 9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 2450.

M. Kornakov

Michael Kornakov
Examiner
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